Butler Rowland Mays Architects, LLP

Troy Public Library - *Main Branch*

Architectural Building Evaluation

Dates Performed: August 27, September 12, and October 8, 2013

Categories of Work:

0. Serious and major damage, not recommended for repair
1. Serious and major damage, repairable with major capital improvement program
2. Some damage, repairable with small capital improvement program
3. Some damage, repairable as part of a general maintenance program
4. Good condition, minor cosmetic work required
5. Excellent condition, no repairs necessary

Summary

Butler Rowland Mays Architects, LLP (BRMA) conducted a walk-through examination of the Troy Public Library - Hart Memorial building, constructed ca. 1897, in order to prepare a general overview of the physical condition of various building systems and materials. This analysis was limited to documentation of observable conditions, and did not include removal of finishes or access to hidden conditions, destructive testing of materials, or detailed calculations and analysis. Information regarding the Mechanical and Electrical Systems is based on a site visit by our consultant John Edwards, PE, of Sage Engineering Associates, LLP.

Building Element or Façade	Roof
Photo	
Existing Conditions	• The building's roof is divided into four large areas, and two smaller roof areas. All of these membrane roofs were reputedly recently installed and are in acceptable condition from visible inspection. Areas in need of patching or repair were noted to the Library Director while on site. • There are a few membrane splits and some failed pitch pockets. • The accessible roofs do not appear to have tapered insulation beneath the membrane, and in many areas there seemed to be uneven material underfoot. It is possible that the visible membrane roof is installed over a previous roof.
Preliminary Recommendations CATEGORY 3	• At least twice a year, the accessible roofs should be walked and visually inspected for areas of damage , wear, or age. During these inspections roof drains should be cleared of any debris, if present; and any miscellaneous materials should be removed. • A qualified roofing contractor should visit the building at least once a year to review the roofs and perform patching and repairs, as well as any other required maintenance.
Additional Investigation	Core samples at each roof area should be taken for testing to determine if a second roof exists, and if there are any hazardous materials that will need to be abated when the roofs are removed and replaced in the future.
Notes	

Building Element or Façade	Roof - Drains
Photo	 
Existing Conditions	• The roof leaders that take excess water away from the main roofs and the Reading Room roof are unprotected openings in the membrane roof. Around these openings are large quantities of debris - mostly brick and mortar material that is washing out of the parapet walls. • At the interior of the building there is evidence of serious moisture infiltration at the ceilings of the Teen and Reading Rooms. This damage may be the result of water ponding at the constricted roof leaders, or from condensation occuring on the leaders as they pass through conditioned spaces. In areas where the original metal vents are still present at the walls, there is little to no ceiling/wall damage, which suggests condensation is part of the issue.
Preliminary Recommendations CATEGORY 3	• Strainers should be placed on all of the roof leaders to prevent unwanted material from clogging the drain. • Once installed, these strainers should be cleaned out at least twice year to prevent clogging and ponding. Depending on the nature of any future capital improvement project, it may be possible to expose the piping and either create a different enclosure or insulate the piping to reduce the possibility of condesation forming on the piping.
Additional Investigation	The source of the moisture infiltration at the ceilings should be explored in more detail at the roof level and in the cavity spaces between the finished ceilings and the roofs to prevent further damage to the plaster ceilings, moldings and walls.
Notes	
Building Element or Façade	Roof - Skylights

Photo	 
Existing Conditions	• The three skylights at the west portion of the building, as well as the large skylight over the Reading Room appear to be in good, water tight condition. Reputedly these four units were repaired during the roof replacement project in the early 2000's. • It appears that gaskets on the interior side of the skylight mullions are beginning to fail. Some gaskets can be observed hanging loose from the mullions. • The wired glazing in these skylights does not appear to be the type of glass required under current building codes.
Preliminary Recommendations CATEGORY 2	• As part of the mechnical improvements project, the existing glazed panes should be replaced with insulated units to reduce heat loss.
Additional Investigation	The exact age of the skylight units is not known, however, based upon visual inspection and the ANSI label on the glazing, hazardous materials testing is suggested for the gaskets, sealants, caulks and etc. Additional building code and glazing material research will be needed to determine a suitable glass type that meets current building code requirements.
Notes	When improvements are made to the skylight, the laylight panels should be cleaned to enhance the quantity and quality of daylight in the interior spaces.

Building Element or Façade	Roof - Parapet Walls (North & East Facades and Reading Room)
Photo	
Existing Conditions	• Many areas of the brick parapet walls are severely deteriorated, with several areas being beyond the point of simply repointing the mortar joints. • The east and north walls, as well as the central roof above the Reading Room, have bluestone copings. Age and atmospheric conditions have caused these coping stones to delaminate in many locations and their associated mortar beds and head joints are severely deteriorated allowing moisture into the wall cavities, which contributes to the brick wall damage.
Preliminary Recommendations CATEGORY 1	• The bluestone copings should be removed and reset with new mortar beds, anchorage and flashings. Some stones that are severely delaminated will need to be replaced with new stone. • Many areas of the brick parapet walls will need to be rebuilt entirely. This rebuilding/repair of the brick masonry will need to be addressed as part of a building-wide masonry restoration project.
Additional Investigation	The parapet walls along the Reading Room roof have an residual asphaltic material remaining from a previous roof system. This material should be tested for potential hazardous materials.
Notes	

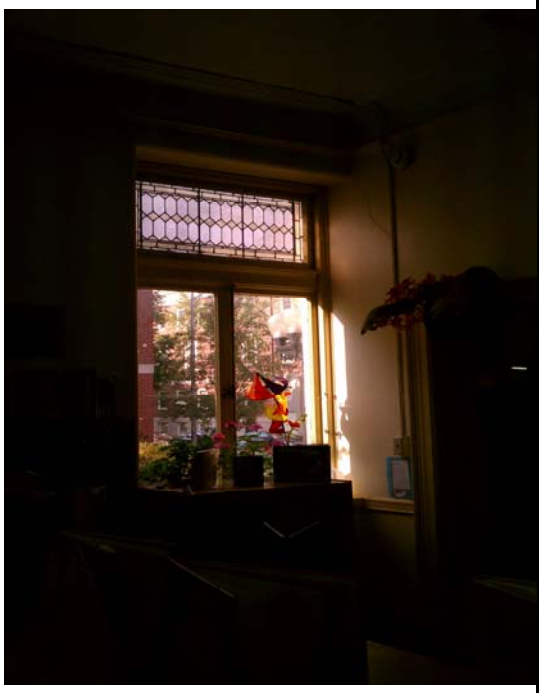
Building Element or Façade	Roof - Marble Veneer Parapet Walls (West & South Facades)
Photo	 
Existing Conditions	• At the south and west exterior walls the roof membrane is run vertically up the parapet walls which are a brick masonry system supporting marble ashlar panels, marble piers and balustrade ornamentation. The vertical installation of the membrane conceals the condition the brick parapet walls. It appears that, in many areas, the brick has spalled and deteriorated and is displacing the membrane. This is likely the result of moisture infiltration, as the mortar beds and joints of the marble cap stones are severely deteriorated, and many joints have been repaired with inappropriate materials. The marble balustrade sections are also quite deterorated and some are becoming displaced.(**See Notes below.)
Preliminary Recommendations CATEGORY 1	• The marble cap stones should be set in new mortar beds and proper joint material, either mortar or sealant, should be applied to prevent further moisture infiltration. • Additionally, the coping stones and other marble ornamentation and cladding of the building will need to be included in a building-wide masonry restoration project as essentially all areas are in need of repointing.
Additional Investigation	A qualified roofer should be contacted to remove (and later reinstall) selected portions of the existing roof membrane to identify the extent of moisture infiltration and brick deterioration that is occurring at these parapet walls. Also, a section of copper flashing at the north-west corner should be removed to help gain a more complete understanding of how the large, projecting marble cornice stones are anchored to the building walls.
Notes	**The removal of the marble balustrade sections has been recommended separately from this report due to the safety concerns stemming from the displacement of certain sections. This work was isolated and recommended outside of this report in order to expedite the removals.

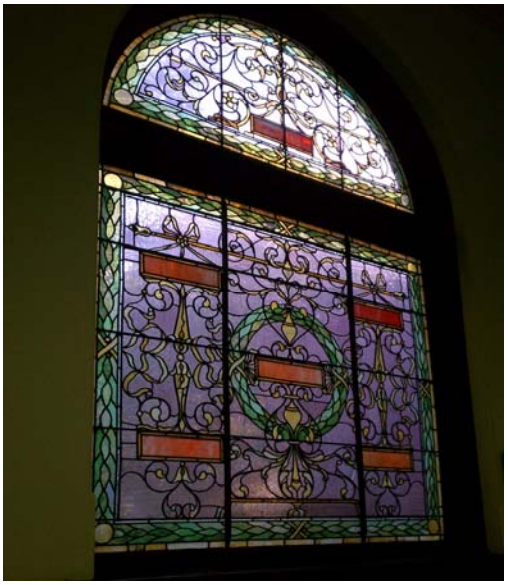
Building Element or Façade	Masonry Walls - South and West Facades
Photo	
Existing Conditions	• The exterior walls of the building are brick masonry construction with decorative marble veneers, elaborate cornices and details. The walls featuring the marble ornamention show severe atmospheric staining and deterioration due to exposure as well as moisture infiltration. Overall, most sealant joints are debonded and weathered, and the mortar joints are weathered, cracked or missing entirely.
Preliminary Recommendations CATEGORY 1	• A comprehesive masonry cleaning should be performed following the Department of the Interior's Preservation Briefs as part of a thorough examination of the masonry exterior to identify areas of deterioration and water infiltration. • In addition, the marble panels should be repointed and fastened back to the brick masonry with restoration anchors. The smaller detailed components of the cornice (dentils, brackets, etc) should be sounded for potential failures.
Additional Investigation	Based upon the size and elaborate detailing, the marble cornice components are considered irreplacable based upon cost and availability of material. A thorough detailed evaluation of the material is warranted to determine the most effective cleaning, stabilizing, and preventative conservation options.
Notes	Regular routine maintenance of the marble and brick walls should be maintained to prevent this level of deterioration and required maintenance from occurring in the future.

Building Element or Façade	Masonry Walls - North and East Facades
Photo	
Existing Conditions	• The North and East faces (non-public) are typical brick masonry bearing walls, it appears that these walls have been routinely painted, however at this time most of the paint has worn off to due exposure. It is typical of the time period that secondary building faces would be constructed with a lower quality of brick which would need to be routinely painted to maintain its structural integrity and moisture resistance.
Preliminary Recommendations CATEGORY 1	• Although portions of the walls have been repointed as needed, a thorough review of these facades is warranted to identify all areas in need of masonry repair and repointing. • In addition to the described maintenance work, these facades should be cleaned and painted to reduce moisture infiltration and preserve the structural integrity of the brick.
Additional Investigation	
Notes	Regular, routine maintenance of the paint finish on brick walls should be performed to prevent this level of deterioration and prevent larger scale masonry deterioration from recurring in the future.

Building Element or Façade	Main Entry - West
Photo	 
Existing Conditions	• The main entrance that faces Second Street features the original marble steps as well as the wrought-iron and carved wood doors. The marble treads are showing significant wear due to use and exposure. • Once inside the paired doors, there are four additional risers which bring you to the Main Level of the building. These stairs are also marble, however textured strips have been applied to increase traction and a metal handrail has been installed at the center of the stairs for improved accessibility.
Preliminary Recommendations CATEGORY 2	•The exterior doors should receive regular polyurethane treatments to preserve the wood.
Additional Investigation	Investigate new hardware for the exterior doors to improve efficiency of operation.
Notes	Although the copper wall sconces appear to have been painted, it appears that prior to the painting, the oxidation process stained the marble walls and stairs. The ornate sconces appear to be historic based on the detailing and materials, these fixtures should be repaired and restored as they can not be replaced. Historic preservartion standards would consider these light fixtures important contributing elements to the building's aesthetic.

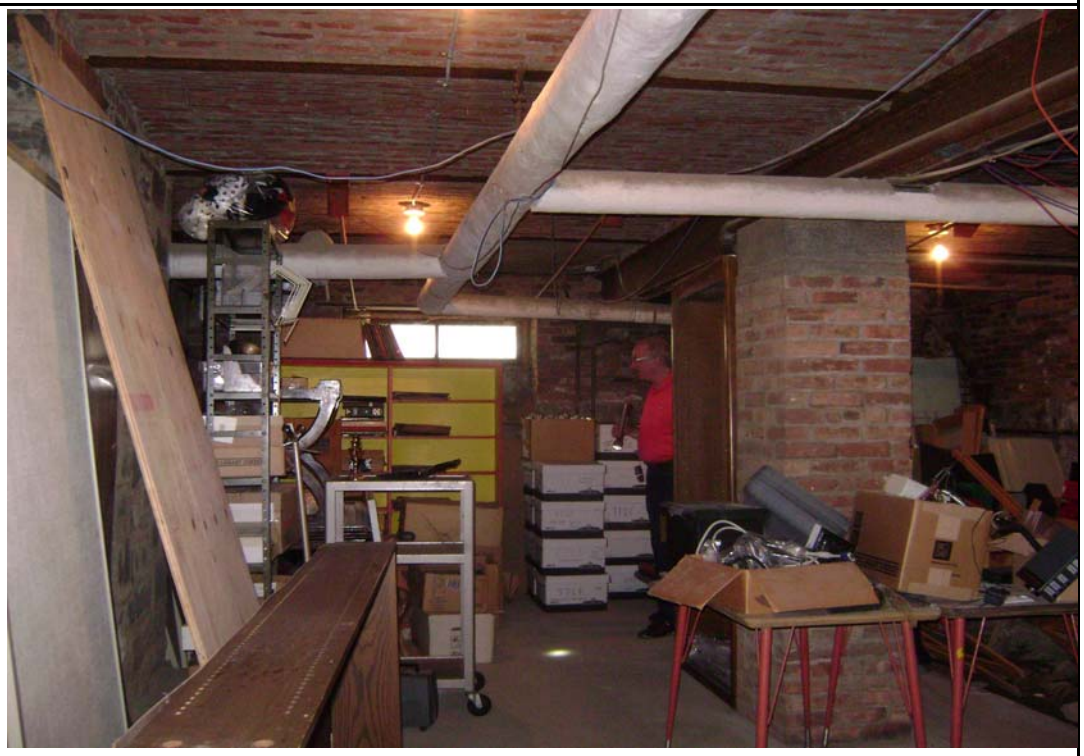
Building Element or Façade	Main Entry - South
Photo	
Existing Conditions	• The main entrance that faces south also features the original marble steps as well as the wrought-iron and carved wood doors. The marble treads are showing significant wear due to use and exposure.
Preliminary Recommendations CATEGORY 2	• The exterior doors should receive regular polyurethane treatments to preserve the wood.
Additional Investigation	Investigate the possibility of utilizing hydraulic cement to raise the first step. Investigate new hardware for the exterior doors to improve efficiency of operation.
Notes	

Building Element or Façade	Windows
Photo	 
Existing Conditions	• Over the past few years the Library has reputedly begun a phased restoration process. Presently the upper level windows on the West façade have been restored, and the 16 paired casement windows along the main level (South, West and North facades) are scheduled to be restored as part of the annual New York State DLD Grant program.
Preliminary Recommendations CATEGORY 2	• Provide interior storms (per the Department of the Interior's Standards for Historic Preservation) for the remaining windows in the Stacks portion of the building, as well as the large units at the Upper Level Loggia.
Additional Investigation	
Notes	Consider installing interior storms at restored windows for greater thermal efficiency.

Building Element or Façade	Stained Glass Windows
Photo	 
Existing Conditions	• The Library features stained glass windows in many shapes and sizes throughout the building. There are stained glass transom units at all the windows on the Main Level North, South and West facades, some of which have been removed for the installation of residential style air-condtioning units. There are three exterior stained glass window units located at the north side of the Upper Level Reading Room, and three identical units located at the (interior) south wall of the Reading Room. On the Main Level there is a large stained glass scene crafted by Frederick Wilson on the Main Level at the Circulation Desk. And finally, there are four elaborate stained glass laylights which correspond to the building's large skylights. • Due to the size and locations of most of the units, a detailed review was not feasible from floor level, or roof. Minor repairs are evident on the wood sills, jambs and etc of the vertical units, and exterior storms have been installed at the four masonry openings on the North face of the building. These exterior storms have helped to protect the windows, but now prevent the pivoting operation of the three exterior • The three arch-topped transom units in the Reading Room are bowing and appear to be taking a convex shape (curving into the Reading Room). The horizontal green leaf component of the main stained glass panel is showing movement in a concave direction.
Preliminary Recommendations CATEGORY 2	• An expert in stained glass windows should be consulted to review the current state and required maintenance of the historic units. (A phased restoration effort to reconstruct the units could be proposed.) • A new custom exterior storm unit should be fabricated for the Wilson window to protect the historic window and increase staff comfort at the Circulation Desk. • When central air conditioning is established in the building, the removed and salvaged transom units should be restored to their original locations on the Main Level.
Additional Investigation	
Notes	

Building Element or Façade	North Courtyard
Photo	
Existing Conditions	• Due to its enclosed northernly location, the courtyard does not experience much sun exposure and therefore suffers from excessive moisture and mold-growth. • The retaining wall at the north side of the courtyard is exhibiting failure with visibly displaced bricks. This is due to moisture infiltration into the wall cavity, as well as earth surcharge which has pushed the wall out of plumb.
Preliminary Recommendations CATEGORY 1	• The proposed masonry cleaning and restoration process should specifically address the mold issues in the courtyard. Following the masonry cleaning, regular maintenance (gentle power-washing) can prevent a majority of the mold. • If the retaining wall is Library property, it should be rebuilt as part of the overall masonry restoration project. If not, the Library may want to limit public access to this area of the courtyard.
Additional Investigation	Research possibility of mold-inhibiting product to be applied to historic stone and concrete surfaces.
Notes	

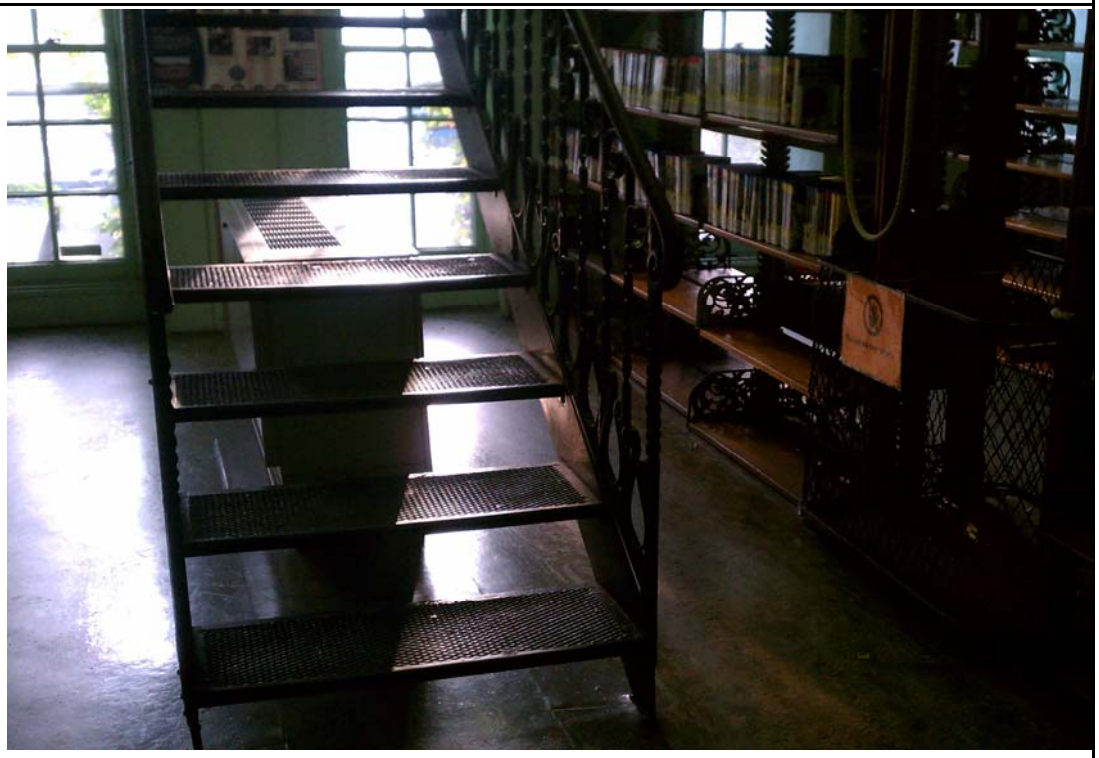
Building Element or Façade	Loggia
Photo	
Existing Conditions	• There is advanced deterioration of the marble balustrades at the second floor loggia on the South face of the building. The excessive deterioration is largely due to the proximity to the vehicular traffic of the Ferry Street Tunnel which was constructed in the 1970's. The vehicle exhaust, combined with rain and other atmospheric contaminants, has essentially completely compromised the integrity of the marble balsuters themselves. The top and bottom rails have faired marginally better as have the columns.
Preliminary Recommendations CATEGORY 1	• Although there is a substantial loss of material to the balustrade units, it is recommended that they remain in place, secured with structural netting, until a comprehensive solution is identifed to prevent public access to the loggia. A temporary solution would be to lock the interior doors in the Main Stair. • In addition to public access concerns, a visually non-invasive solution to prevent aviary inhabitation of this space should also be investigated.
Additional Investigation	Consideration may be given to the utilization of a fypon product for the replacement of the marble balustrades.
Notes	

Building Element or Façade	Lower Level - Unfinished Areas
Photo	
Existing Conditions	• The west half of the lower level remains unfinished, with miscellaneous building elements, furniture, used equipment and odd items, as well as exposed piping, conduits and wiring. Full observation of this area is limited by the amount of materials present and the storage methods.
Preliminary Recommendations CATEGORY 3	• There appears to be asbestos wrapping on many of the exposed heat pipes running throughout this area, this material should be tested and abated prior to any repairs or improvements. Any pipe abated of insulation should be re-insulated with appropriate material.
Additional Investigation	
Notes	This area of the lower level has become a repository for all broken, unused or unnessary items and materials. These items should be thoughtfully reviewed and sorted; for instance historic doors and windows from the building should be cataloged and carefully stored for potential reuse, while other more random items (i.e.: old electronics, printers, tables, shelving units, etc.) should be purged.

Building Element or Façade	Lower Level - Finished Areas
Photo	
Existing Conditions	• More than half of the basement level of the building has been renovated to create additional staff workspaces as well a small meeting/training room. This area also includes mechanical and electrical rooms, and janitorial space. Access to this level is provided via the original interior stair at the south entry of the building, an exterior door at the north courtyard, an exterior door and stair at the east facade, and the new elevator. The elevator only provides access to the central portion of this level; the floor level to the west is approximately 1 foot higher, and the spaces to the east are approximately four feet lower. Staff typically use the elevator or south stair to access their workspaces. Due to the limited supervision of the door at this interior stair, and its proximity to the entrance, the door remains locked at all times. • The bluestone steps at the east side of the building allow access to the rear courtyard, although the steps are steep and hard to negotiate. The rear courtyard is enclosed with a tall fence which does not contain any gate, therefore these stairs should not be considered a means of egress.
Preliminary Recommendations CATEGORY 3	• Install handrails at the east exterior stairs, and create a gate access point in the existing fence for emergency egress purposes.
Additional Investigation	Consider a card-swipe or other technological system to more easily control and monitor access to this level.
Notes	

Building Element or Façade	Handicap Accessible Ramp
Photo	
Existing Conditions	• Reputedly the existing handicap ramp is scheduled for repairs and improvements in the near future, however at the time of this report the steel supports and steel plate ramp surface are heavily rusted.
Preliminary Recommendations CATEGORY --	• Galvanized steel materials, painted with a high-perfomrance epoxy base coating system with urethane top-coat, are typically recommended for this type of exterior installation and use. • General maintenance (including regular painting) should be performed to maximize the lifespan of the materials.
Additional Investigation	
Notes	

Building Element or Façade	Vertical Circulation - Main Stair
Photo	
Existing Conditions	• The main staircase which leads from the Main Hall - Circulation and Information Desks area to the Upper Level Reading Room, Program Space and Public Access Computers. This staircase is constructed of marble treads and iron risers, it also features ornate wrought-iron handrails.
Preliminary Recommendations CATEGORY 4	• New paint should be applied to the iron risers to improve the overall appearance and help visually differentiate the risers and treads. • Due to the age and excessive use, the marble treads are siginificantly worn, care should be taken to maintain the treads and prevent slipping hazards (moisture, debris, etc).
Additional Investigation	
Notes	At this time the current handrails do not meet the standards set forth by ANSI and the ADA (Americans with Disabilites Act); it may be prudent to install an accessible handrail at the center of each run of stairs.

Building Element or Façade	Vertical Circulation - Stacks
Photo	
Existing Conditions	• The rear portion of the building was constructed to house of the Library's collections on four levels of integratal stacks that feature their own wrought-iron staircase and dumbwaiter for moving materials. The main floor level of the building is approximately 6 inches higher that the corresponding floor level in the stacks, a ramp has been installed across the threshold of area, but it does not meet handicap accessibility requirements. The first and third floor levels of the collection space roughly align with the Main and Reading Room floor levels. There is an intermediate level of stacks between the main and upper levels, and the fourth level of the stacks is approximately one-half floor level above the Reading Room floor level. This fourth level is currently accessed only by staff and does not house active collections. • Although the collection space was originally intended to be accessed only by a Librarian, patrons are now free to browse the first three levels of the stacks. The construction and layout of these stacks was intended to maximize collection storage, with the end panels of the stacks serving as vertical supports for the floor above.
Preliminary Recommendations CATEGORY --	• Based on the one-of-a-kind historic status of this space, and the integrated structure of the stacks, very little can be done to improve patron access and ADA compliance.
Additional Investigation	
Notes	

Building Element or Façade	Plaster Walls
Photo	
Existing Conditions	• A majority of the original plaster walls appear to be in good to excellent condition. Some areas show scuffing and debris from postings, but little permanent damage is evident. The only significant areas of cracking and wall damage appear at the southwest corner of the building, which has been attributed to the construction of the 1970s Ferry Street Tunnel.
Preliminary Recommendations CATEGORY 2	• It appears that the building has accomodated the structural changes from the imposition of the 1970s tunnel and is no longer moving / settling, however the installation and review of vibration monitors for a few months could confirm this assessment. • Once the moisture inflitration at the roof leaders is resolved, the plaster damage in the Reading Room and Teen Space should be repaired by a qualified historic craftsman.
Additional Investigation	
Notes	

Building Element or Façade	Finished Floors
Photo	 
Existing Conditions	• The building features mosaic tile, marble, hardwood, linoleum, carpet and composite tile floors, of various ages and levels of wear throughout the building. • The mosaic tile floors are in the best condition and should remain so if proper care is maintained. • The marble floor and treads of the main staircase are in good condition, but have been worn down by over a hundred years of foot traffic. The hardwood floors featured in the Teen Room, Public Access Computer Room, Program / Museum Spaces and etc also show significant wear and deterioration from heavy usage. The large Reading Room features a composite tile which is assumed to be aesbestos based on the color and size of the tiles. • The four levels of stacks feature multiple floor finishes, some in layers. The original glass and steel floor construction, is visible on some levels, but other areas have hardwood flooring or linoleum installed, and in one area there is the linoleum product installed over composite tile.
Preliminary Recommendations CATEGORY 3	• Prior to the implementation of any floor finish replacements, or significant interior improvements, hazardous material testing should be performed on the non-original floor finishes (linoleum sheet product, composite tile, etc).
Additional Investigation	
Notes	

Building Element or Façade	Electrical Systems
Photo	 
Existing Conditions	• The construction of the elevator and the associated building improvements required that a new three-phase electrical service be brought to the building. However, the electrical distribution system from the main distribution panel appears to be original, dating back to circa 1940s. This era of electrical distribution features cloth insulated wires, which is assumed to have been used in this building. • The building lacks lighting controls, most areas are controlled at the local panel boards.
Preliminary Recommendations CATEGORY 1	• The original cloth insulated wire distribution system should be removed and replaced with a new electrical distribution system meeting current code requirements. Any panels located in public areas should be secured to prevent unwanted access. • While the elctrical distribution system is updated, a lighting controls package should be integrated throughout the building so that lighting controls are intuitive for staff.
Additional Investigation	
Notes	

Building Element or Façade	Interior Lighting
Photo	 
Existing Conditions	• The building features a variety of lighting from historic crystal chandliers to surface mounted and hanging florescent fixtures. Due to the various light fixtures and locations, light levels are inconsistent throughout the specific spaces, as well as the building overall.
Preliminary Recommendations CATEGORY 2	• Care should be taken to maintain the existing historic fixtures found throughout the building. • An energy audit should be performed to identify the amount of electricity being consumed by the florescent fixtures on the two public levels. • A comprehesive review and upgrade to the lighting fixtures is recommended to provide even light levels throughout the building.
Additional Investigation	
Notes	Consideration should be given to including a daylight harvesting component to the proposed lighting controls package.

Building Element or Façade	Mechanical System
Photo	
Existing Conditions	• Heat is provided via a steam boiler to single and double piped radiator units located throughout the building. There are a variety of radiator units, which may have been a result of replacement over the decades, or size and type for the specific spaces they were located in. At a later time, cabinet heaters were introduced to supplement the radiators in the large collection stack space and the Reading Room. The visible steam piping located throughout the building appears to be original. • Building ventilation was originally designed to be gravity with roof relief and operable windows and grilles throughout the building. In the past, as a result of energy conservation work, the roof reliefs have been closed off, effectively rendering the original gravity concept inoperable.
Preliminary Recommendations CATEGORY 1	• The existing steam heating system should be removed and replaced with a hot water heating system complete with a new condensing boiler. In addition, a ventilation system should be installed, to accommodate the air exchange requirements set forth in the New York State Building Code for Places of Assembly. • Air conditioning can be provided with a VRF (Variable Refrigerant Flow) System which can be designed for individual spaces, and do not require ductwork, which would be extemely hard to locate given the historic fabric of the buildiing.
Additional Investigation	
Notes	